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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,485	03/14/2001	Christopher A. Hazen	Mo-6238/MD00-124	3626

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EXAMINER

LISH, PETER J

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 11/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/808,485

Applicant(s)

HAZEN ET AL.

Examiner

Peter J Lish

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

Claims 14 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 14 and 20 recite "the reduction of heat in step (b)", however, it is seen that step (b) provides incineration, not the reduction of heat. Perhaps step (c) is meant.

Claim Rejections - 35 USC § 103

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaiger et al. ("Influence of sulphur on the formation...") taken with Chang (US 5,505,766).

Gaiger et al. teaches the influence of sulfur on the formation of fioxin/furan during sewage sludge, domestic refuse, and special refuse incineration. Solitary incineration of sewage sludge takes place mainly in fluidized bed ovens. The temperatures in the fluidized bed oven lie between 650 and 900 °C. depending on the nature of the sludge. The energy contained in the waste gas is utilized for generating steam. The waste gases are then purified by removing dust, sulfur dioxide, hydrochloric acid, heavy metals, etc. Gaiger et al. does not specifically disclose the details of this waste gas purification.

Chang teaches a method for the removal of pollutants, such as mercury and other heavy metals, from an exhaust gas. The purification is accomplished by sending the gas first to a primary particulate collection device, such as an electrostatic precipitator, for removing fly ash particles from the gas. The gas is next contacted with activated carbon sorbent, followed by filtering in a baghouse. The system produces reduced quantities of hazardous waste and requires reduced quantities of sorbents because most of the fly ash particles are removed from the flue gas by primary collector before the flue gas interacts with the sorbent. It additionally allows reuse of the sorbents.

It would have been obvious to one of ordinary skill at the time of invention to use the waste gas purification of Chang on the waste gas of Gaiger et al. in order to efficiently purify the gases.

Regarding claim 9, Gaiger et al. does not explicitly teach the temperature to which the gases are cooled during the generation of steam. However, it would have been obvious to one of ordinary skill at the time of invention to cool the gases to a temperature of between 0 and 200 °C, in order to effectively and efficiently utilize the heat energy of the gas.

Regarding claim 12, while the rate of addition of either sulfur compounds or activated carbon compounds are not taught by Gaiger et al. and Chang, respectively, the selection of a desired rate is viewed to be the optimization of a known process, as both are considered to be result-effective variables, which is held to be obvious by *In re Boesch*, 205 USPQ 215.

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Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaiger et al. ("Influence of sulphur on the formation...") taken with Mayer-Scwinning et al. (US 5,439,508).

Gaiger et al. teaches the influence of sulfur on the formation of fioxin/furan during sewage sludge, domestic refuse, and special refuse incineration. Solitary incineration of sewage sludge takes place mainly in fluidized bed ovens. The temperatures in the fluidized bed oven lie between 650 and 900 °C. depending on the nature of the sludge. The energy contained in the waste gas is utilized for generating steam. The waste gases are then purified by removing dust, sulfur dioxide, hydrochloric acid, heavy metals, etc. Gaiger et al. does not specifically disclose the details of this waste gas purification.

Mayer-Scwinning teaches the separation of dioxins and furans from exhaust gases from refuse incinerating plants. The Purification entails the removal of dust and fly ash in a known manner, such as an electrostatic precipitator or a cyclone or impingement separator. The thus prepurified exhaust gases are then contacted with activated carbon sorbent and fed to a wet electrostatic precipitator for removal.

It would have been obvious to one of ordinary skill at the time of invention to use the waste gas purification of Mayer-Scwinning et al. on the waste gas of Gaiger et al. in order to purify the gases from pollutants such as acid gases and remaining dioxins. Additionally, it would have been obvious to use the product of one process in a second process if the second process requires the product of the first, e.g. the purification process of Mayer-Scwinning requires the waste gas product of Gaiger et al, as held by In re Kamlet 88 USPQ 106.

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Regarding claim 9, Gaiger et al. does not explicitly teach the temperature to which the gases are cooled during the generation of steam. However, it would have been obvious to one of ordinary skill at the time of invention to cool the gases to a temperature of between 0 and 200 °C, in order to effectively and efficiently utilize the heat energy of the gas.

Regarding claim 12, while the rate of addition of either sulfur compounds or activated carbon compounds are not taught by Gaiger et al. and Mayer-Scwinning, respectively, the selection of a desired rate is viewed to be the optimization of a known process, as both are considered to be result-effective variables, which is held to be obvious by *In re Boesch*, 205 USPQ 215.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaiger et al. ("Influence of sulphur on the formation...") taken with Onaka et al. ("Development of Dioxins Removal Systems for EAF").

Gaiger et al. teaches the influence of sulfur on the formation of fioxin/furan during sewage sludge, domestic refuse, and special refuse incineration. Solitary incineration of sewage sludge takes place mainly in fluidized bed ovens. The temperatures in the fluidized bed oven lie between 650 and 900 °C. depending on the nature of the sludge. The energy contained in the waste gas is utilized for generating steam. The waste gases are then purified by removing dust, sulfur dioxide, hydrochloric acid, heavy metals, etc. Gaiger et al. does not specifically disclose the details of this waste gas purification.

Onaka et al. teaches the separation of dioxins from exhaust gases from refuse incinerating plants. The purification entails the removal of dust and fly ash in a dust collector, although the

common use of electrostatic precipitators is additionally taught. The exhaust gases are then contacted with activated carbon sorbent and fed to another bag filter for removal.

It would have been obvious to one of ordinary skill at the time of invention to use the waste gas purification of Onaka et al. on the waste gas of Gaiger et al. in order to purify the gases from remaining dioxin pollutants. Additionally, it would have been obvious to use the product of one process in a second process if the second process requires the product of the first, e.g. the purification process of Onaka et al. requires the waste gas product of Gaiger et al, as held by In re Kamlet 88 USPQ 106.

Regarding claim 9, Gaiger et al. does not explicitly teach the temperature to which the gases are cooled during the generation of steam. However, it would have been obvious to one of ordinary skill at the time of invention to cool the gases to a temperature of between 0 and 200 °C, in order to effectively and efficiently utilize the heat energy of the gas. Additionally, Onaka et al. teaches that the lower the inlet gas temperature of the dust collector, the higher the removal ratio. A preferred temperature of below 80 °C is taught. Therefore, it would have been obvious to one of ordinary skill at the time of invention to cool the gases to a temperature within the claimed range, in order to provide a better removal of dioxins, as taught by Onaka et al.

Regarding claim 12, while the rate of addition of either sulfur compounds or activated carbon compounds are not taught by Gaiger et al. and Onaka et al., respectively, the selection of a desired rate is viewed to be the optimization of a known process, as both are considered to be result-effective variables, which is held to be obvious by In re Boesch, 205 USPQ 215.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Lish whose telephone number is 703-308-1772. The examiner can normally be reached on 9:00-6:00 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 703-308-3837. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

PL



**STUART L. HENDRICKSON
PRIMARY EXAMINER**